RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Settlement at U. of Delaware

Opponents of "political correctness" on campus won a big victory last month. Faced with an imminent lawsuit, the University of Delaware agreed to an out-of-court settlement with two faculty members who claimed the university was infringing on their teaching and research.

Linda Gottfredson

The two academics are sociologist Linda Gottfredson—a controversial figure in academia because of her views on race and employment testing—and a collaborator, political scientist Jan Blits. Trouble began two-and-a-half years ago when a fellow professor denounced their chief funding source, the Pioneer Fund, as racist. The university, following a faculty investigation, announced it would no longer accept financial support from the fund because it supports research—such as on the genetics of IQ—that some people find antithetical to the goals of affirmative action programs. Gottfredson and Blits decided to fight back and, with the help of the Association of American University Professors, got the dispute submitted to binding arbitration. The arbitrator reversed the ban last summer.

But that was only part of a "larger pattern of violations of academic freedom," according to Gottfredson. The two academics say that officials reversed earlier support of Gottfredson's promotion to full professor, that some research was reclassified as "nonresearch" for evaluation purposes, that teaching assignments were altered, and that officials attempted to investigate the political content of their students' papers.

According to Gottfredson and Blits, all this was in large part reaction to two influential papers they published 2 years ago on the "race-norming" of employment test scores—the practice of adjusting scores so that the same percentage of every ethnic group passes (*Science*, 2 June 1989, p. 1036). The authors argued that, because ability tests are not racially biased, race-norming is not a scientifically justifiable solution to the problem of group inequalities. Congress based its decision to outlaw race-norming in the 1991 Civil Rights Act on this argument, and an Equal Employment Opportunity Commission official told *Science* that the change has been "commonly attributed" to the two papers.

Thus Gottfredson has no small number of critics, though few are now willing to speak on the record. Her then-department chairman, Victor Martuza—now on leave in Europe—said in recommending against her promotion that the race-norming papers challenge "assumptions... rooted in the political realities of the times," and asserted that they "do not meet the scholarly standards reflected in her earlier work."

University officials won't comment on the settlement, much of which remains confidential. Maxine R. Colm, vice president for employee relations, said only that they are "pleased" an understanding has been reached. That understanding provides for a year's paid leave of absence for both Blits and Gottfredson. Their "nonresearch" will be reclassified as research. And a monitor will be appointed to ensure fairness when Blits comes up for full professor next year.

Does It Take Real Intelligence to Run a City?

Artificial intelligence (AI) programs have been sheltered from the real world for too long, contend computer scientists at the University of Chicago. Instead of learning to play challenging but abstract games such as chess—a common pursuit of AI programs—their program is getting a taste of the big city, or at least a video version of it.

The AI program will play SimCity, a computer game sold by Orinda, California-based Maxis, in which players start with an empty patch of land and erect a city that constantly demands decisions about growth, traffic, pollution, and occasional natural disasters. In SimCity, "you can't predict exactly what's going to happen next," says computer scientist Kristian Hammond, who will oversee the development of the AI program. "There are no 'right' or 'wrong' answers, but an unending series of decisions that can lead to a wide variety of results," he says. The program, which will operate on a Macintosh IIfx, will have to learn from the decisions it makes—for example, how a tax assessment might alter the population density of the simulated city, and how this might lead to city growth or contraction.

Urban understanding. A SimCity layout.

That should give the AI program a different kind of training than do traditional learning tools such as chess, which teaches AI programs "abstract, esoteric things that have nothing to do with the world," says Hammond. SimCity, in contrast, will lead to an incremental learning process that is "very similar to how people learn." But will it learn to take bribes from contractors?

The Sound of Light

You're outdoors, caught in a thunderstorm. A lightning bolt flashes nearby and simultaneously you hear a sharp click that precedes the thunder. For years, physicists have chalked up that clicking sound to the strong electric field that often develops during severe weather. Two of the more popular theories posit that an electric field either elicits noisy sparks from objects near a lightning strike, or that it stimulates "electrophonic hearing"—the firing of an observer's auditory neurons. But an Australian physicist has now cooked up a new theory, based on an obscure phenomenon: electrophonic sound production by inanimate objects.

Rather than being a product of the electric field near a lightning strike, the click might arise from very low frequency (VLF) radio waves streaming from the lightning bolt that are transduced by nearby objects into sound waves, says Colin S.L. Keay of the University of Newcastle. Keay bases his theory on experiments in which everyday objects, from aluminum foil to sprigs of casuarina pine, produced sounds ranging from 40 to 60 decibels when subjected to electric fields of about 400 kilovolts per meter.

Some physicists are skeptical of Keay's theory. "He may actually be getting the sounds from sparks coming from objects in that strong a field," says Arthur Few, a thunder expert at Rice University. Keay counters that the electric fields used in his experiments are "well below the threshold for electrical breakdown," meaning that the fields aren't triggering sparks. Besides, he says, his electrophonic theory, first published in *Science* in 1980 as an explanation for anomalous sounds that sometimes accompany bolides (large, bright meteors) as they enter the atmosphere, got some electrifying experimental support in 1988 when Japanese researchers

published VLF radio signals that they recorded during the fall of a bolide over Japan. Keay, who's catalogued about 300 reports of anomalous sounds so far, says the electrophonic effect might even explain strange sounds that accompany auroral displays. The basic message, he says, "is that the ability of mundane objects to respond to VLF radiation is an unexplored field."

But this raises a question: If lightning strikes a tree in a forest when nobody's around, does it make an electrophonic sound?

Controlling Your Personal Environment

How would you like to have an "environmentally responsive workstation"? No, it won't measure ozone levels, but it would allow you to control the lighting, cooling and heating, volume and direction of fresh air flow, and even background noise in your work area. Researchers at Rensselaer Polytechnic Institute (RPI) in Troy, New York, say it would not only make you happy but would also pay for itself by raising your productivity. No idle boast, they say—they've recently completed a field test at a Wisconsin insurance company.

Walter Kroner, director of RPI's Center for Architectural Research and the original developer of the concept, says environmentally responsive workstations—vented units under desks run by desktop control boxes—will work in a roomful of employees as little as 6 feet apart. He says experts in "advanced comfort systems" have long argued that if workers had this kind of control they would be more productive. But employers have been reluctant to install such systems for lack of solid proof.

So, when Kroner heard that West Bend Mutual Insurance Co. was planning to move from a crumbling old building into one equipped with "personal environment modules," he immediately saw "a research opportunity as rare as the coming of Halley's comet." Rare not only because of the large number (350) of workstations being installed, but because the company had well-defined criteria for productivity across a range of jobs.

During the first half of 1991, the researchers established baseline data on the productivity of 118 workers in the old facility. In the second half of the year, the same workers were monitored in the new building—where their productivity went up by 15%.

Then, to determine how much the new workstation technology (produced by a Milwaukee company, Johnson Control) contributed to the improvement, some of the controls were secretly and randomly disabled. Based on resultant changes in job performance—and despite the fact that some employees threatened to walk out if their machines weren't turned back on—the researchers calculated that an overall productivity increase of 2% could be attributed to the workstation units. Kroner says that's enough to prove that the systems, which cost about $1300 each to install, are cost effective. And RPI quotes a West Bend officer as saying "the payback...is under 2 years."

Scientist Featured in Mountaineering Flick

Even on those rare occasions when a piece of brilliant research carries a scientist to the very summit of his profession, that scientist isn't likely to find himself featured in a Hollywood movie. But neurobiologist Louis Reichardt, a Howard Hughes Investigator at the University of California, San Francisco, was transformed into a big screen character not for his lofty achievements in developmental neurobiology, but because he happens also to have been part of the first American expedition to the top of K2, the second-highest mountain in the world.

CRAVEN PHOTO: ROB MCEWAN

Reichardt, mountaineering in younger days, and his Hollywood counterpart Matt Craven *(inset)*.

Reichardt, the only American to have reached the summits of both K2 and Mt. Everest, became the first climber ever to make it up K2 without supplemental oxygen. Paramount's new movie "K2" (based on a 1982 play) is inspired by that 1978 ascent by Reichardt and his Seattle attorney friend, Jim Wickwire. Reichardt calls the film "a composite" of life-and-death mountaineering experiences, rather than a faithful account of the 1978 expedition. But, he adds, "three-quarters of those things have happened to me at one time or another."

Perhaps the greatest change from real life was the transformation of Reichardt's character from neurobiologist to physicist. Paramount had no comment as to why that was done, but Reichardt points out that the filmmakers also took liberties with Wickwire's character, turning the family man and father of five into a playboy. Presumably, then, Hollywood sees physicists as sexier than biologists–something FASEB ought to look into before this perception spreads to the public at large.

Public's Research Priorities

Health research is in, defense and space are out. According to a telephone poll of 1255 adults conducted in March by Louis Harris and Associates Inc., 67% of the respondents wanted the country to spend either a "little less" or "a lot less" on "defense research to develop new weapons systems." And 57% called for less spending on "space exploration and development." But nearly everybody favors medical and environmental research—91% wanted either a "little more" or "a lot more" spending on "medical research to better diagnose, prevent, and treat diseases;" 85% wanted more spending on "environmental research, to find ways to protect the environment without hurting economic competitiveness."